

Safety Precautions

(Carefully follow the precautions listed below because they are essential to guarantee the safety of the equipment.)



WARNING

- **Always disconnect the air conditioner from the power supply before servicing it or accessing its internal components.**
- **Verify that installation and testing operations are performed by qualified personnel.**
- **Verify that the air conditioner is not installed in an easily accessible area.**

GENERAL INFORMATION

- ◆ Carefully read the content of this manual before installing the air conditioner and store the manual in a safe place in order to be able to use it as reference after installation.
- ◆ For maximum safety, installers should always carefully read the following warnings.
- ◆ Store the operation and installation manual in a safe location and remember to hand it over to the new owner if the air conditioner is sold or transferred.
- ◆ This manual explains how to install an indoor unit with a split system with two SAMSUNG units. The use of other types of units with different control systems may damage the units and invalidate the warranty. The manufacturer shall not be responsible for damages arising from the use of non compliant units.
- ◆ The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and requirements set forth in the "Operating limits" table, included in the manual, shall immediately invalidate the warranty.
- ◆ The air conditioner should be used only for the applications for which it has been designed: the indoor unit is not suitable to be installed in areas used for laundry.
- ◆ Do not use the units if damaged. If problems occur, switch the unit off and disconnect it from the power supply.
- ◆ In order to prevent electric shocks, fires or injuries, always stop the unit, disable the protection switch and contact SAMSUNG' technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.
- ◆ Always remember to inspect the unit, electric connections, refrigerant tubes and protections regularly. These operations should be performed by qualified personnel only.
- ◆ The unit contains moving parts, which should always be kept out of the reach of children.
- ◆ Do not attempt to repair, move, alter or reinstall the unit. If performed by unauthorized personnel, these operations may cause electric shocks or fires.
- ◆ Do not place containers with liquids or other objects on the unit.
- ◆ All the materials used for the manufacture and packaging of the air conditioner are recyclable.
- ◆ The packing material and exhaust batteries of the remote control(optional) must be disposed of in accordance with current laws.
- ◆ The air conditioner contains a refrigerant that has to be disposed of as special waste. At the end of its life cycle, the air conditioner must be disposed of in authorized centers or returned to the retailer so that it can be disposed of correctly and safely.

INSTALLING THE UNIT

IMPORTANT: When installing the unit, always remember to connect first the refrigerant tubes, then the electrical lines.
Always disassemble the electric lines before the refrigerant tubes.

- ◆ Upon receipt, inspect the product to verify that it has not been damaged during transport. If the product appears damaged, DO NOT INSTALL it and immediately report the damage to the carrier or retailer (if the installer or the authorized technician has collected the material from the retailer.)
- ◆ After completing the installation, always carry out a functional test and provide the instructions on how to operate the air conditioner to the user.
- ◆ Do not use the air conditioner in environments with hazardous substances or close to equipment that release free flames to avoid the occurrence of fires, explosions or injuries.

POWER SUPPLY LINE, FUSE OR CIRCUIT BREAKER

- ◆ Always make sure that the power supply is compliant with current safety standards. Always install the air conditioner in compliance with current local safety standards.
- ◆ Always verify that a suitable grounding connection is available.
- ◆ Verify that the voltage and frequency of the power supply comply with the specifications and that the installed power is sufficient to ensure the operation of any other domestic appliance connected to the same electric lines.
- ◆ Always verify that the cut-off and protection switches are suitably dimensioned.
- ◆ Verify that the air conditioner is connected to the power supply in accordance with the instructions provided in the wiring diagram included in the manual.
- ◆ Always verify that electric connections (cable entry, section of leads, protections...) are compliant with the electric specifications and with the instructions provided in the wiring scheme. Always verify that all connections comply with the standards applicable to the installation of air conditioners.

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◆ COMBINATION TABLE

Deciding on Where to Install the Air Conditioner

When deciding on the location of the air conditioner with the owner, the following restrictions must be taken into account.

General

Do NOT install the air conditioner in a location where it will come into contact with the following elements:

- ◆ Combustible gases
- ◆ Saline air
- ◆ Machine oil
- ◆ Sulphide gas
- ◆ Special environmental conditions

If you must install the unit in such conditions, first consult your dealer.

Outdoor Unit

- ◆ The outdoor unit must NEVER be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.
- ◆ Choose a location that is dry and sunny, but not exposed to direct sunlight or strong winds.
- ◆ Do not block any passageways or thoroughfares.
- ◆ Choose a location where the noise of the air conditioner when running and the discharged air do not disturb any neighbours.
- ◆ Choose a position that enables the piping and cables to be easily connected to the indoor unit and the recommended length will be respected.
- ◆ Install the outdoor unit on a flat, stable surface that can support its weight and does not generate any unnecessary noise and vibration.
- ◆ Position the outdoor unit so that the air flow is directed towards the outside, as indicated by the arrows on the top of the unit.
- ◆ Maintain sufficient clearance around the outdoor unit, as indicated in the diagram on the page opposite.
- ◆ Make sure that the water dripping from the drain hose runs away correctly and safely.

CAUTION

- ◆ ***You have just purchased a Free Joint Multi air conditioner and it has been installed by your installation specialist.***
- ◆ ***This device must be installed according to the national electrical rules.***
- ◆ ***Max input power & current is measured according to IEC standard and input power & current is measured according to ISO standard.***
- ◆ ***More than 2 indoor units should be installed when you use Free Joint Multi air conditioner.***
- ◆ ***The units must be installed according to distances declared, in order to permit accessibility from each side, either to guarantee correct operation of maintenance or repairing products. The unit's parts must be reachable and removable completely under safety condition (for people or things).***
- ◆ ***The cost needed to reach and repair the outdoor unit (in SAFETY CONDITION according to decree of law 626/94) , installed above 3.0 meters height (from the floor) will be charged to final customer.***
- ◆ ***With an outdoor unit having net weight upper then 60kg, we suggest do not install it suspended on wall, but considering floor standing one.***

◆ MH040FX*A2B

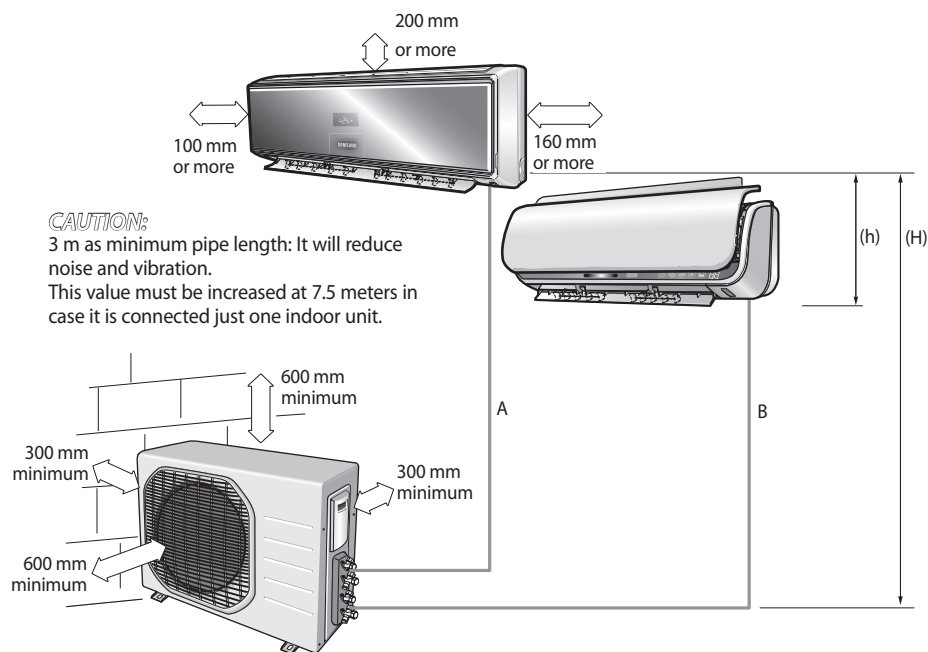
Indoor unit	Outdoor unit	Power supply Ø, V, Hz
020/023/026/035	MH040FX*A2B	1,220-240, 50

▷ Piping outside diameter

Unit	Outside diameter	
	Liquid	Gas
020/023/026/035	1/4"	3/8"

※ MH040FX*A2B outdoor unit cannot be connected to the following indoor unit combination.

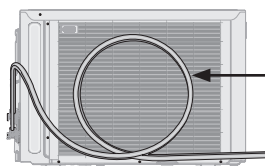
-**052**/MH***FM*/MH***FE*/A/MH***FU*/A



▷ Piping length and the height

	1 Room max length	2 Room total max length	Max height between indoor unit & outdoor unit	Max height between indoor units
Dimension	20m	30 m	15m	7.5 m
Composition	A,B	A+B	(H)	(h)

System can work with one indoor unit connected, but it is recommended that the TOTAL number of indoor unit suggested by manufacturer are connected to obtain the maximum performance.



Make at least one round:
It will reduce noise and vibration

※ The appearance of the unit may be different from the diagram depending on the model.

Deciding on Where to Install the Air Conditioner (Continued)

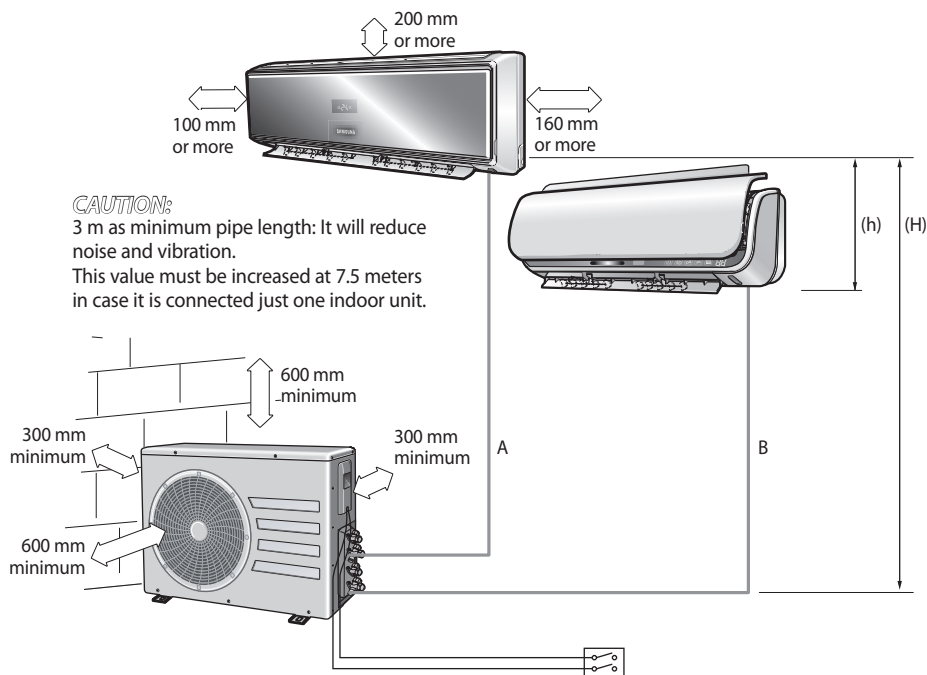
◆ MH050FX*A2B

Indoor unit	Outdoor unit	Power supply Ø, V, Hz
020/023/026/035/052	MH050FX*A2B	1,220-240, 50

► Piping outside diameter

Unit	Outside diameter	
	Liquid	Gas
020/023/026/035	1/4"	3/8"
052		1/2"

* MH052FX*A2B outdoor unit cannot be connected to the following indoor unit combination.
-MH052FMEA/MH052FUEA

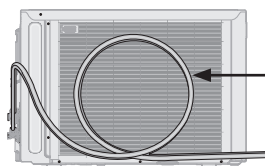


Main power switch

► Piping length and the height

	1 Room max length	2 Room total max length	Max height between indoor unit & outdoor unit	Max height between indoor units
Dimension	20m	30 m	15m	7.5 m
Composition	A,B	A+B	(H)	(h)

System can work with one indoor unit connected, but it is recommended that the TOTAL number of indoor unit suggested by manufacturer are connected to obtain the maximum performance.



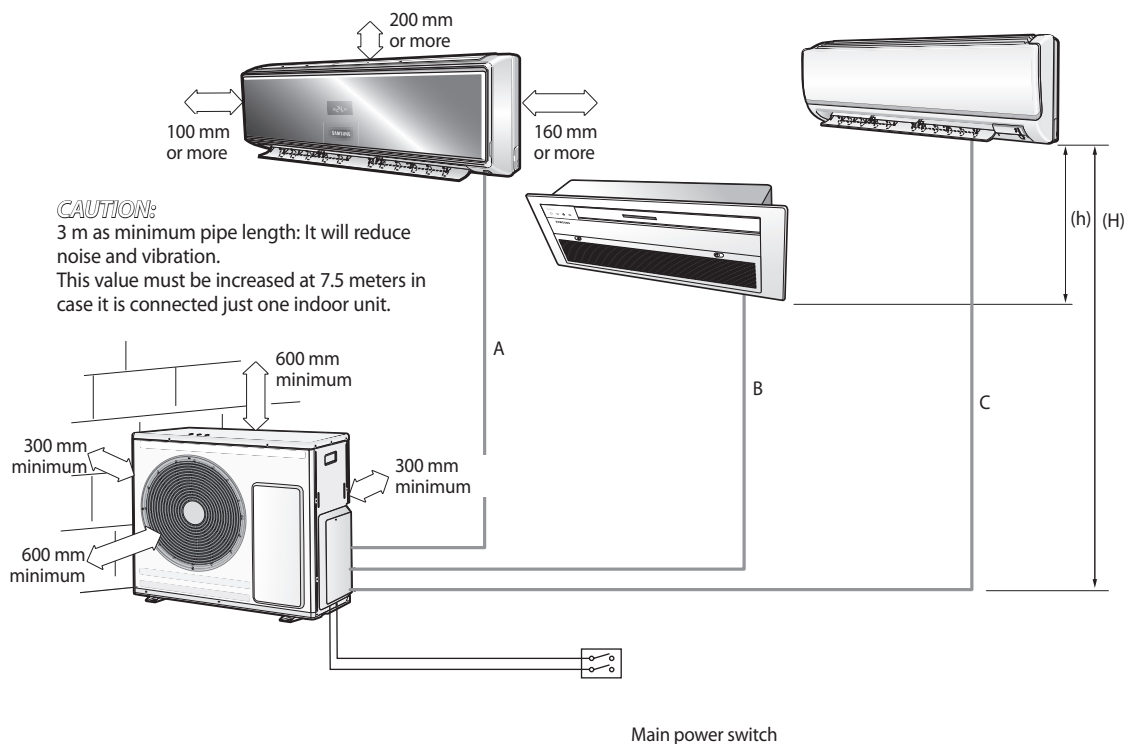
* The appearance of the unit may be different from the diagram depending on the model.

◆ MH060FX*A3B

▷ Piping outside diameter

Indoor unit	Outdoor unit	Power supply Ø, V, Hz
020/023/026/030/035/052	MH060FX*A3B	1,220-240, 50

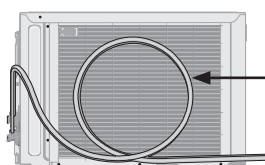
Unit	Outside diameter	
	Liquid	Gas
020/023/026/030/035	1/4"	3/8"
052		1/2"



▷ Piping length and the height

	1 Room max length	3 Room total max length	Max height between indoor unit & outdoor unit	Max height between indoor units
Dimension	20m	45 m	15m	7.5 m
Composition	A,B,C	A+B+C	(H)	(h)

System can work with one indoor unit connected, but it is recommended that the TOTAL number of indoor unit suggested by manufacturer are connected to obtain the maximum performance.



Make at least one round:
It will reduce noise and vibration

* The appearance of the unit may be different from the diagram depending on the model.

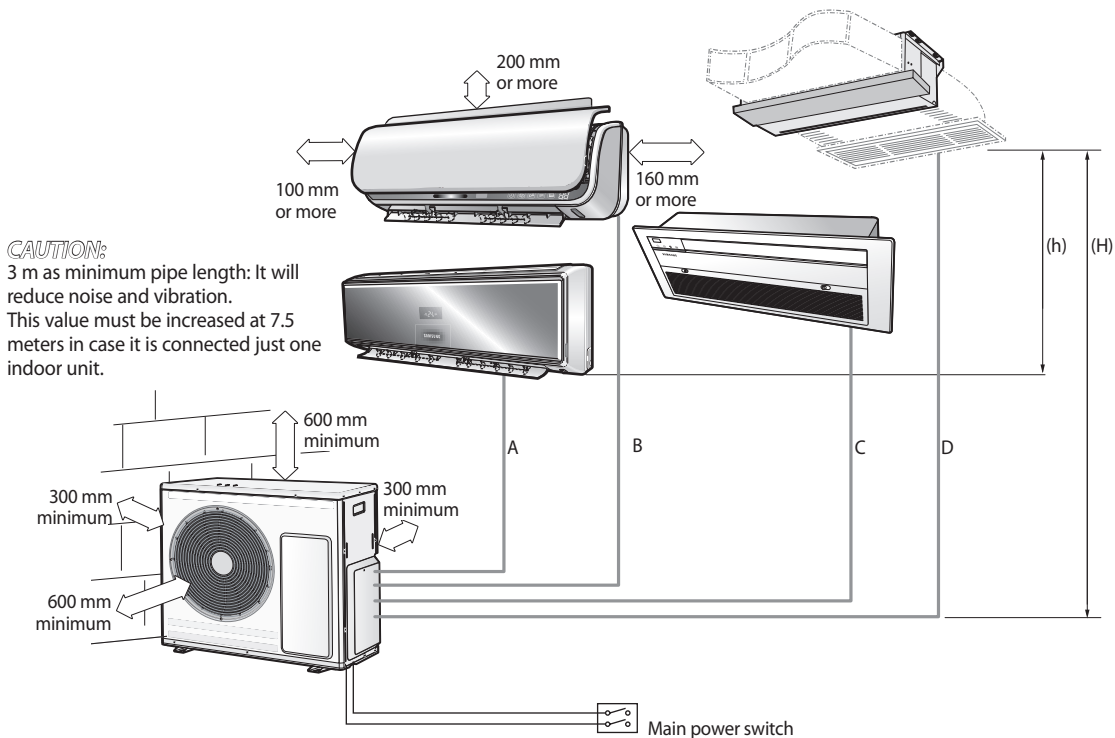
Deciding on Where to Install the Air Conditioner (Continued)

◆ MH070FX*A4B / MH080FX*A4B

Indoor unit	Outdoor unit	Power supply Ø, V, Hz
020/023/026/030/035/052	MH070FX*A4B MH080FX*A4B	1,220-240, 50

▷ Piping outside diameter

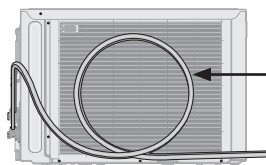
Unit	Outside diameter	
	Liquid	Gas
020/023/026/030/035	1/4"	3/8"
052	1/4"	1/2"



▷ Piping length and the height

	1 Room max length	4 Room total max length	Max height between indoor unit & outdoor unit	Max height between indoor units
Dimension	25m	70 m	15m	7.5 m
Composition	A,B,C,D	A+B+C+D	(H)	(h)

System can work with one indoor unit connected, but it is recommended that the TOTAL number of indoor unit suggested by manufacturer are connected to obtain the maximum performance.



Make at least one round:
It will reduce noise and vibration

* The appearance of the unit may be different from the diagram depending on the model.

◆ MH18VF1X/MH19VF1X

Indoor unit	Outdoor unit	Power supply Ø, V, Hz
MH18VF1-09	MH18VF1X	1,220-240~, 50
MH19VF1-07	MH19VF1X	
MH19VF1-12		

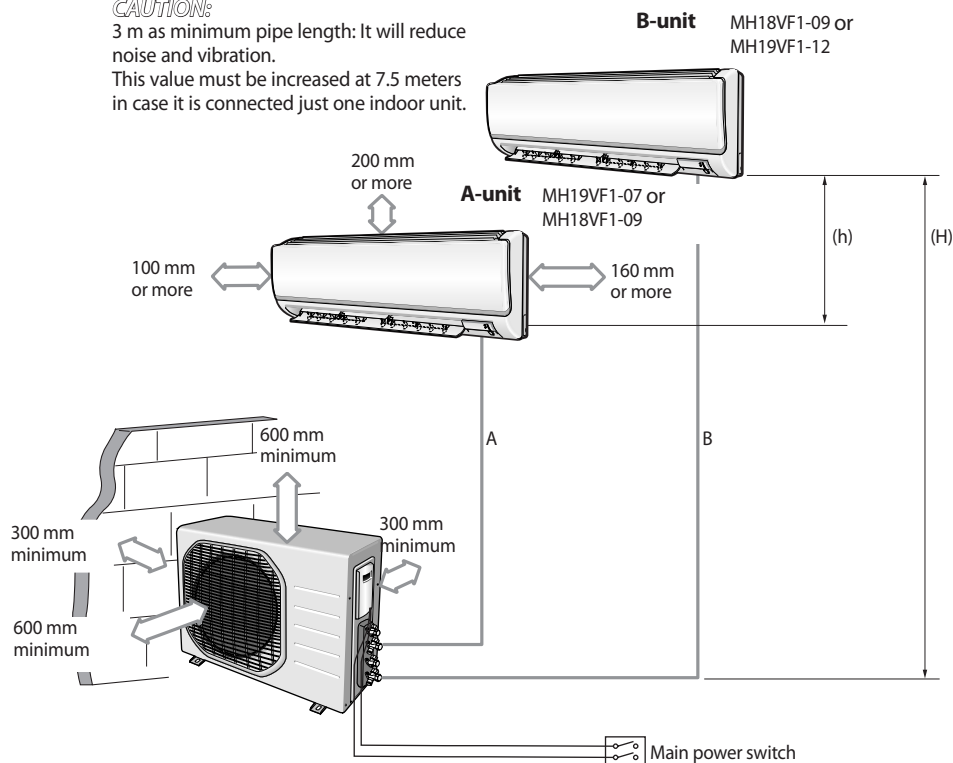
► Piping outside diameter

Unit	Outer Diameter	
	Liquid	Gas
MH18VF1-09 MH19VF1-07 MH19VF1-12	1/4"	3/8"

✱ **Respect the clearances and maximum lengths indicated in the diagram below when installing the unit.**

CAUTION:

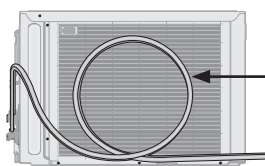
3 m as minimum pipe length: It will reduce noise and vibration.
This value must be increased at 7.5 meters in case it is connected just one indoor unit.



► Piping length and the height

	1 Room max length	2 Room total max length	Max height between indoor unit & outdoor unit	Max height between indoor units
Dimension	20m	30 m	15m	7.5 m
Composition	A,B	A+B	(H)	(h)

System can work with one indoor unit connected, but it is recommended that the TOTAL number of indoor unit suggested by manufacturer are connected to obtain the maximum performance.



Make at least one round:
It will reduce noise and vibration

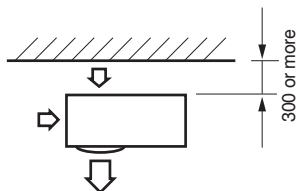
✱ The appearance of the unit may be different from the diagram depending on the model.

Deciding on Where to Install the Air Conditioner (Continued)

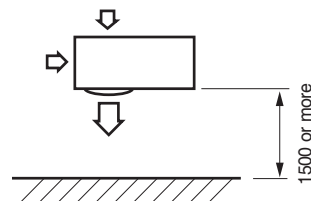
Space Requirements for Outdoor Unit

When installing 1 outdoor unit

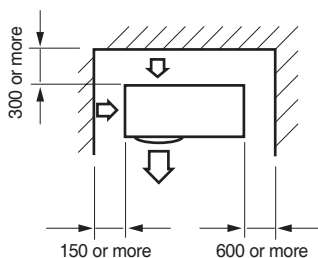
Unit : mm



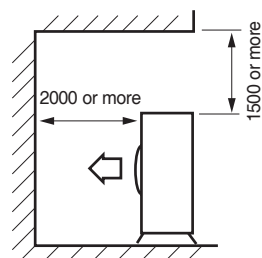
* When the air outlet is opposite the wall



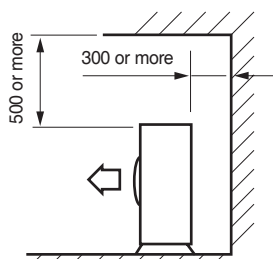
* When the air outlet is towards the wall



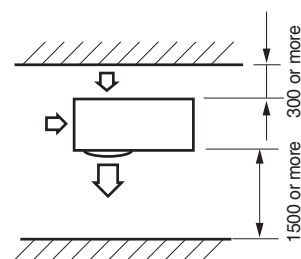
* When 3 sides of the outdoor unit are blocked by the wall



* The upper part of the outdoor unit and the air outlet is towards the wall



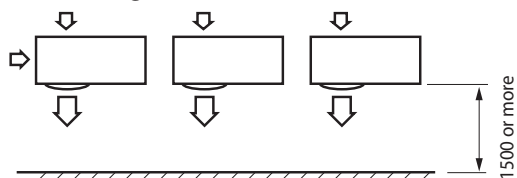
* The upper part of the outdoor unit and the air outlet is opposite the wall



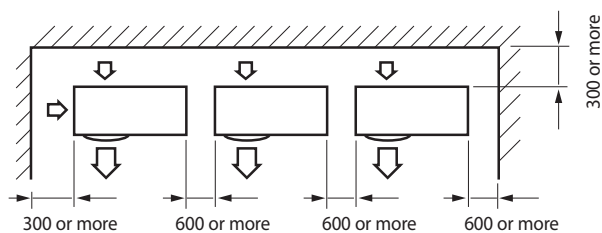
* When front and rear side of the outdoor unit is towards the wall

When installing more than 1 outdoor unit

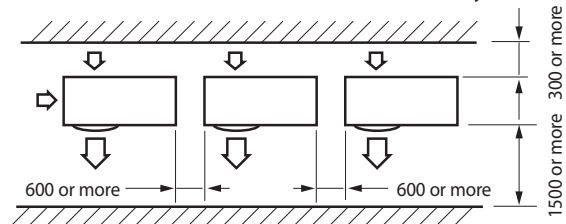
Unit : mm



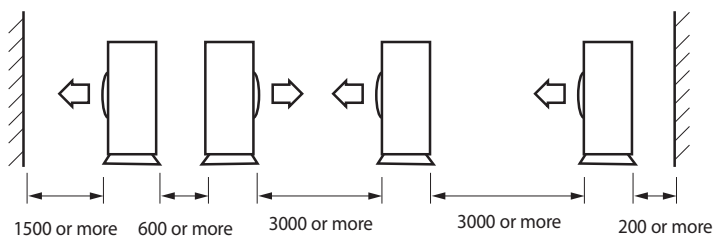
* When the air outlet is towards the wall



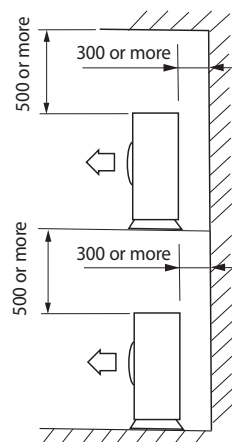
* When 3 sides of the outdoor unit are blocked by the wall



* When front and rear side of the outdoor unit is towards the wall



* When front and rear side of the outdoor unit is towards the wall



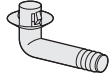
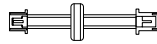
* The upper part of the outdoor unit and the air outlet is opposite the wall

Air Conditioner and Accessories

The following accessories are supplied with the air conditioner.

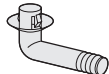
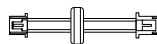
Accessories in the Outdoor Unit Case

◆ MH040FX*A2B/MH050FX*A2B/MH060FX*A3B/MH18VF1X/MH19VF1X

3-wire Power Cable (option) 	2-wire Assembly Cable (option) 	Drain Plug 	Transmitter power cable 	Energy Label 
Rubber Leg 	Flare Bolt (Nut 1/2", Bolt 3/8") (except MH040FX*A2B) 	Installation Manual 		

* Attach Energy Label to the outdoor unit properly when installing.

◆ MH070FX*A4B / MH080FX*A4B

3-wire Power Cable (option) 	2-wire Assembly Cable (option) 	Drain Plug 	Transmitter power cable 	Installation Manual 
Rubber Leg 	Flare Nuts, 6.35mm outer pipe diameter 	Flare Nuts, 9.52mm outer pipe diameter 	Flare Bolt (Nut 1/2", Bolt 3/8") 	Energy Label 

* Attach Energy Label to the outdoor unit properly when installing.

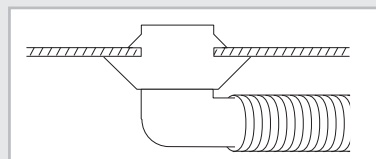
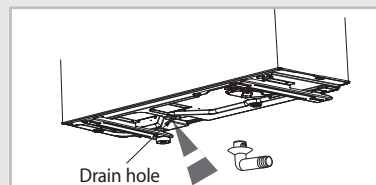
➤ **The 3-wire power cable and the 2-wire assembly cable are optional. If these cables are not supplied, use the standard cable approved by IEC standard.**

Please, check "Connecting the Cables to the Outdoor Unit" section.

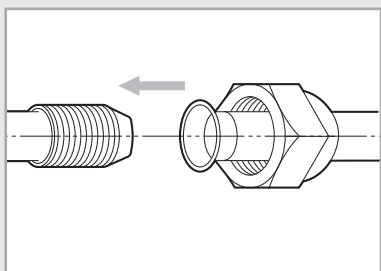
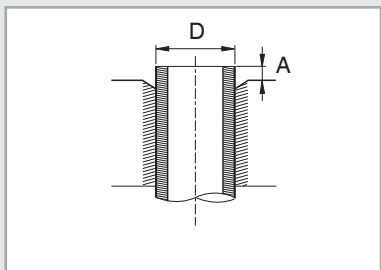
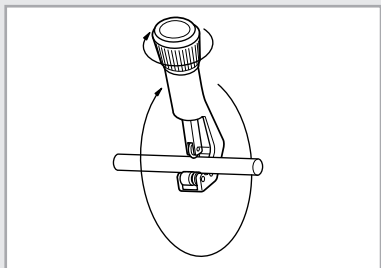
Installing and Connecting the Drain Hose of the Outdoor Unit

While heating, ice may accumulate. During the process of defrosting, check if condensation draining is adequate. For adequate draining, do the following:

- 1** Insert the drain plug into the drain hole on the underside of the outdoor unit.
- 2** Connect the drain hose to the drain plug.
- 3** Ensure that condensation draining is adequate.

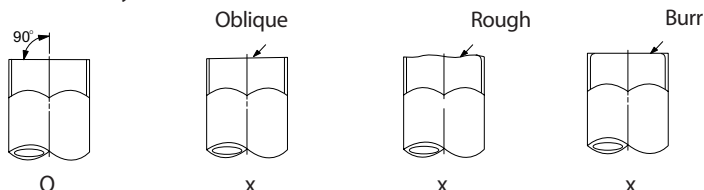


Cutting/Extending the Piping



1 Make sure that you have the required tools available (pipe cutter, reamer, flaring tool and pipe holder).

2 If you wish to shorten the piping, cut it using a pipe cutter, taking care to ensure that the cut edge remains at a 90° angle with the side of the pipe, and referring to the illustrations below for examples of edges cut correctly and incorrectly.

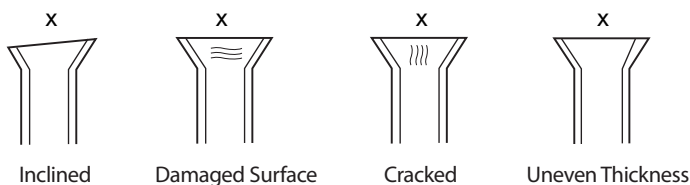


3 To prevent any gas from leaking out, remove all burrs at the cut end of the pipe, using a reamer.

4 Slide a flare nut on to the pipe and modify the flare.

Outer Diameter (D)	Depth(A)
6.35mm	1.3mm
9.52 mm	1.8 mm
12.70 mm	2.0 mm

5 Check that the flaring is correct, referring to the illustrations below for examples of incorrect flaring.



6 Align the pipes to be connected and tighten the flare nuts first manually and then with a torque wrench, applying the following torque.

Outer Diameter	Torque (kgf·cm)
6.35 mm	140~170
9.52 mm	250~280
12.70 mm	380~420

7 For further details on how to connect up to the outdoor unit and purge the circuit, refer to page 23.

➤ *In case welding the pipe, the gas nitrogen must be blown into the parts.*

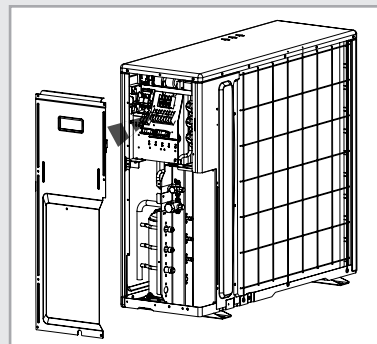
Connecting the Cables to the Outdoor Unit

※ When you install the unit, make first refrigerant connections and then electrical connections. Connect the air conditioner to grounding system before performing the electrical connection. If unit is uninstalled first disconnect electrical cables, then refrigerant connections.

2 electric cables must be connected to the outdoor unit:

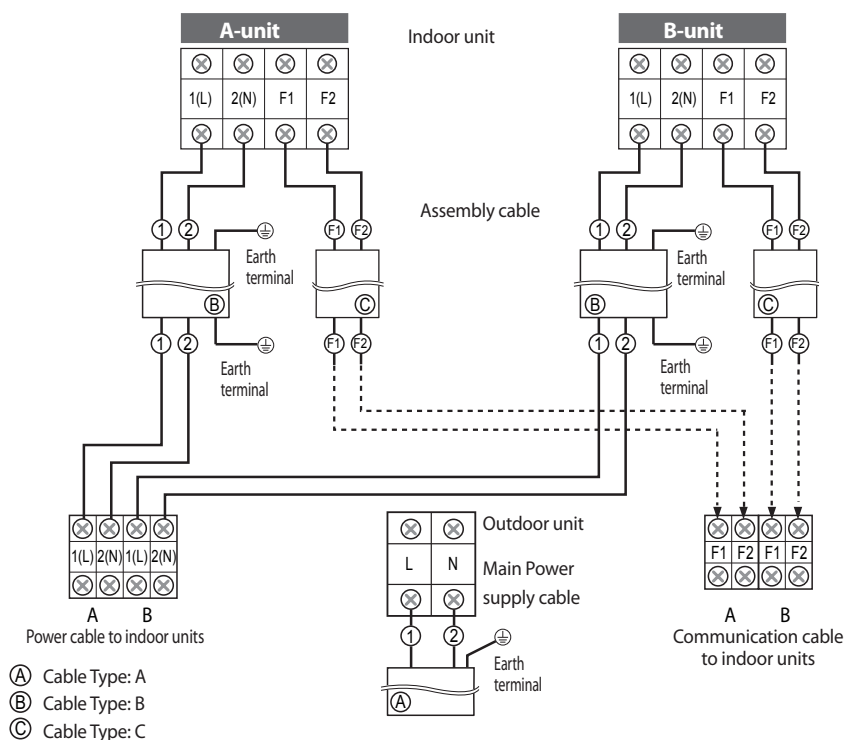
- ◆ The assembly cable connecting the indoor unit to the outdoor unit.
- ◆ The power cable connecting the auxiliary circuit breaker to the outdoor unit.

- 1 Remove the cabinet side RH of the outdoor unit.
- 2 Connect the assembly cable with the power cable such as figure.(40~70kgf.m)
 - Each wire is labelled with the corresponding terminal number.
 - Ensure the wire number of the indoor unit and the terminal number of the outdoor unit.
- 3 Connect the earth wires to the earth terminals.
 - Refer to the page 22 for further details on how to check that earthing is correct.
- 4 Fix the cables with cable clamps near terminal blocks to protect the wire connection to the terminals from force on the wire.
- 5 Replace the terminal board cover, carefully tightening the screw.
- 6 Connect the power cable to the auxiliary circuit breaker.



※ The designs and shape are subject to change according to the model.

◆ MH040FX* A2B/MH050FX* A2B/MH18VF1X/MH19VF1X



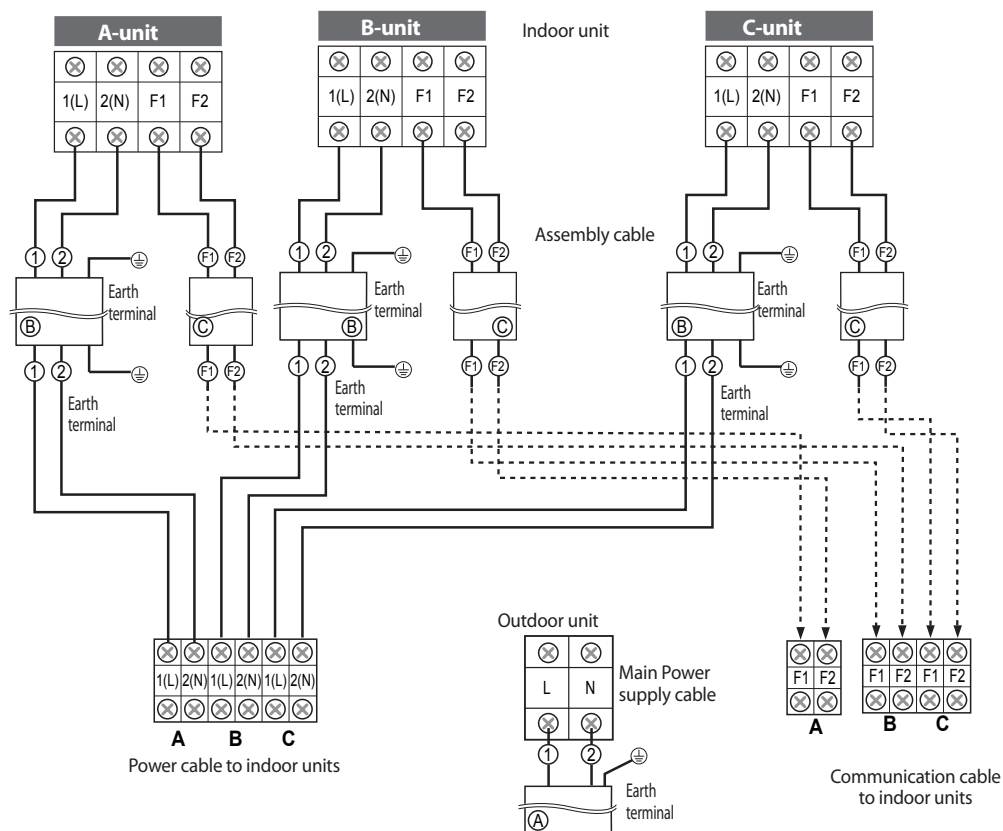
The specification for cables :

Model	Main Power Supply Cable		Indoor Power Supply Cable		Communication Cable		FUSE	MCCB	Type GL
	Specication	Type	Specication	Type	Specication	Type			
MH040FX* A2B MH050FX* A2B MH18VF1X MH19VF1X	3G, 2.5mm ² or more, H07RN-F	①	3G, 1.0mm ² or more, H07RN-F	②	2G, 0.75mm ² or more, H07RN-F	③	20A	Frame : 30A Trip : 20A	20A
MH060FX* A3B							20A	Frame : 30A Trip : 25A	25A
MH070FX* A4B MH080FX* A4B							30A	Frame : 30A Trip : 30A	30A

- Connect the power cable to the auxiliary circuit breaker. If every pole fails to connect to the power supply, it must be incorporated in a wire with a contact opening of ≥3mm.

Connecting the Cables to the Outdoor Unit(Continued)

◆ MH060FX*A3B



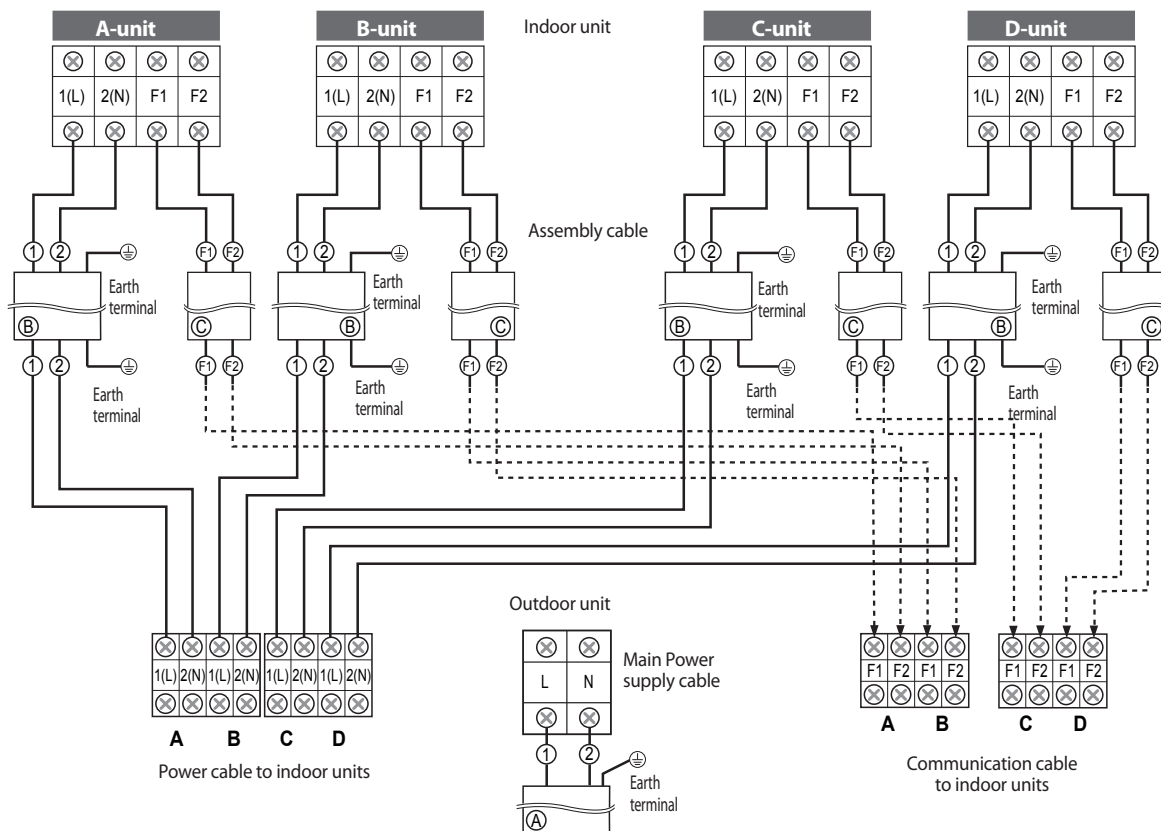
- Ⓐ Cable Type: A
- Ⓑ Cable Type: B
- Ⓒ Cable Type: C

The specification for cables :

Model	Main Power Supply Cable		Indoor Power Supply Cable		Communication Cable		FUSE	MCCB	Type GL
	Specication	Type	Specication	Type	Specication	Type			
MH040FX*A2B MH050FX*A2B MH18VF1X MH19VF1X	3G, 2.5mm ² or more, H07RN-F	Ⓐ	3G, 1.0mm ² or more, H07RN-F	Ⓑ	2G, 0.75mm ² or more, H07RN-F	Ⓒ	20A	Frame : 30A Trip : 20A	20A
MH060FX*A3B							20A	Frame : 30A Trip : 25A	25A
MH070FX*A4B MH080FX*A4B							30A	Frame : 30A Trip : 30A	30A

- **Connect the power cable to the auxiliary circuit breaker.**
If every pole fails to connect to the power supply, it must be incorporated in a wire with a contact opening of ≥3mm.

◆ MH070FX*A4B / MH080FX*A4B



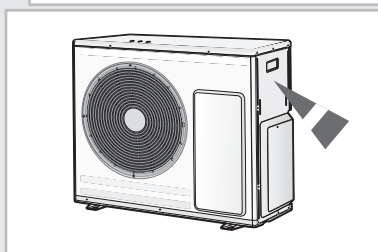
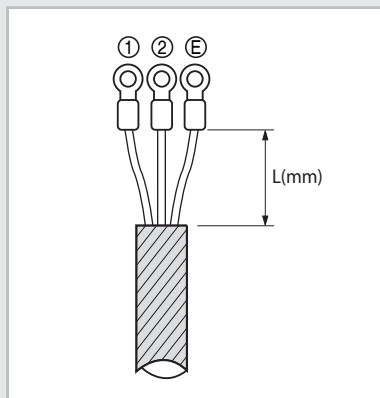
- (A) Cable Type: A
- (B) Cable Type: B
- (C) Cable Type: C

The specification for cables :

Model	Main Power Supply Cable		Indoor Power Supply Cable		Communication Cable		FUSE	MCCB	Type GL
	Specication	Type	Specication	Type	Specication	Type			
MH040FX*A2B MH050FX*A2B MH18VF1X MH19VF1X	3G, 2.5mm ² or more, H07RN-F	(A)	3G, 1.0mm ² or more, H07RN-F	(B)	2G, 0.75mm ² or more, H07RN-F	(C)	20A	Frame : 30A Trip : 20A	20A
MH060FX*A3B							20A	Frame : 30A Trip : 25A	25A
MH070FX*A4B MH080FX*A4B							30A	Frame : 30A Trip : 30A	30A

- **Connect the power cable to the auxiliary circuit breaker.**
If every pole fails to connect to the power supply, it must be incorporated in a wire with a contact opening of ≥3mm.

Connecting the Cables to the Outdoor Unit (Continued)



※ The designs and shape are subject to change according to the model.

Preparation of cables for outdoor unit terminal block

▶ Main power supply cable: L(mm)

Cable of indoor unit	①	②	㊦
Main Power	20	20	90

▶ Power cable to indoor units: L(mm)

Cable of indoor unit	①	②	㊦	Remark
A	60	60	80	
B	60	60	80	
C	70	70	110	For **060/070/080** only
D	90	90	90	For **070/080** only

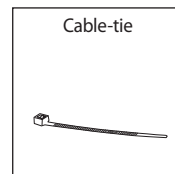
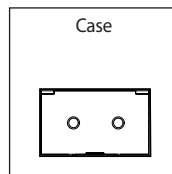
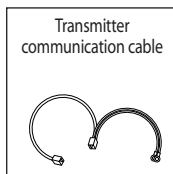
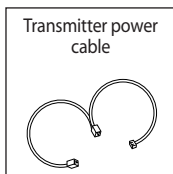
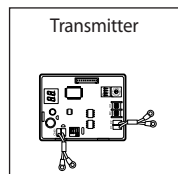
▶ Communication cable to indoor units : L(mm)

Cable of indoor unit	①	②	Remark
A	15	15	
B			
C			For **060/070/080** only
D			For **070/080** only

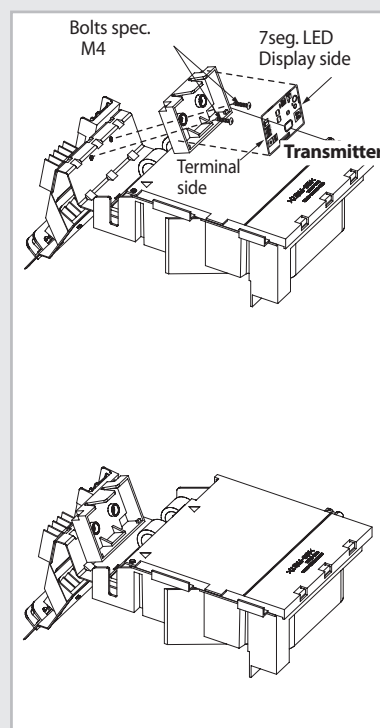
Transmitter Installation (Optional)

◆ MH040FX*A2B/MH18VF1X/MH19VF1X

Accessories (Transmitter: MIM-B13)



- 1 Fix the case at with bolts on the side of the control box in the outdoor unit.
(See the picture)
- 2 Attach the transmitter PCB to the case in the control box in the outdoor unit, then connect the power and the communication cable between the transmitter and the outdoor unit; refer to the figure of page 19.
- 3 If you install a transmitter to an outdoor unit, every indoor unit which is connected to an outdoor unit can be controlled simultaneously.
- 4 Each outdoor unit connected to the same centralized controller has its own transmitter.

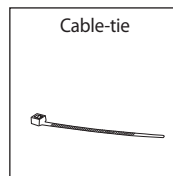
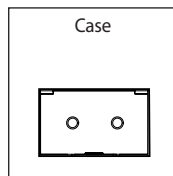
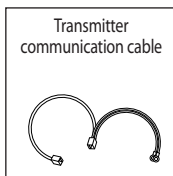
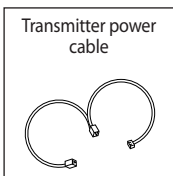
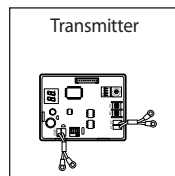


Fix the case with hinges
(Control Box in the outdoor unit)

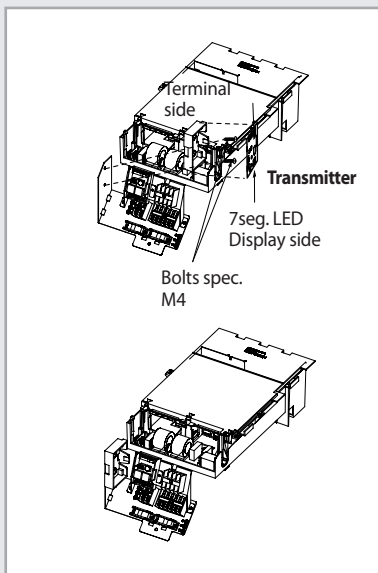
Transmitter Installation (Optional) (Continued)

◆ MH050FX*A2B/MH060FX*A3B/MH070FX*A4B / MH080FX*A4B

Accessories(Transmitter: MIM-B13)

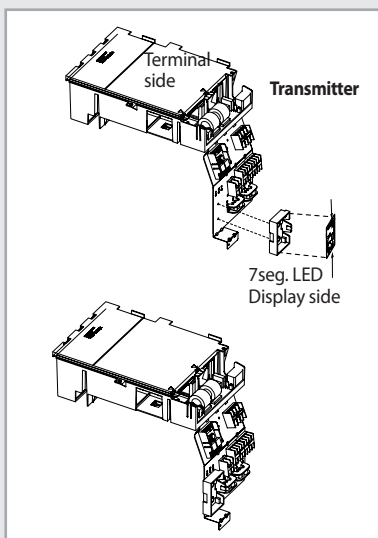


MH050FX*A2B



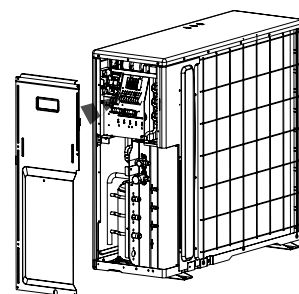
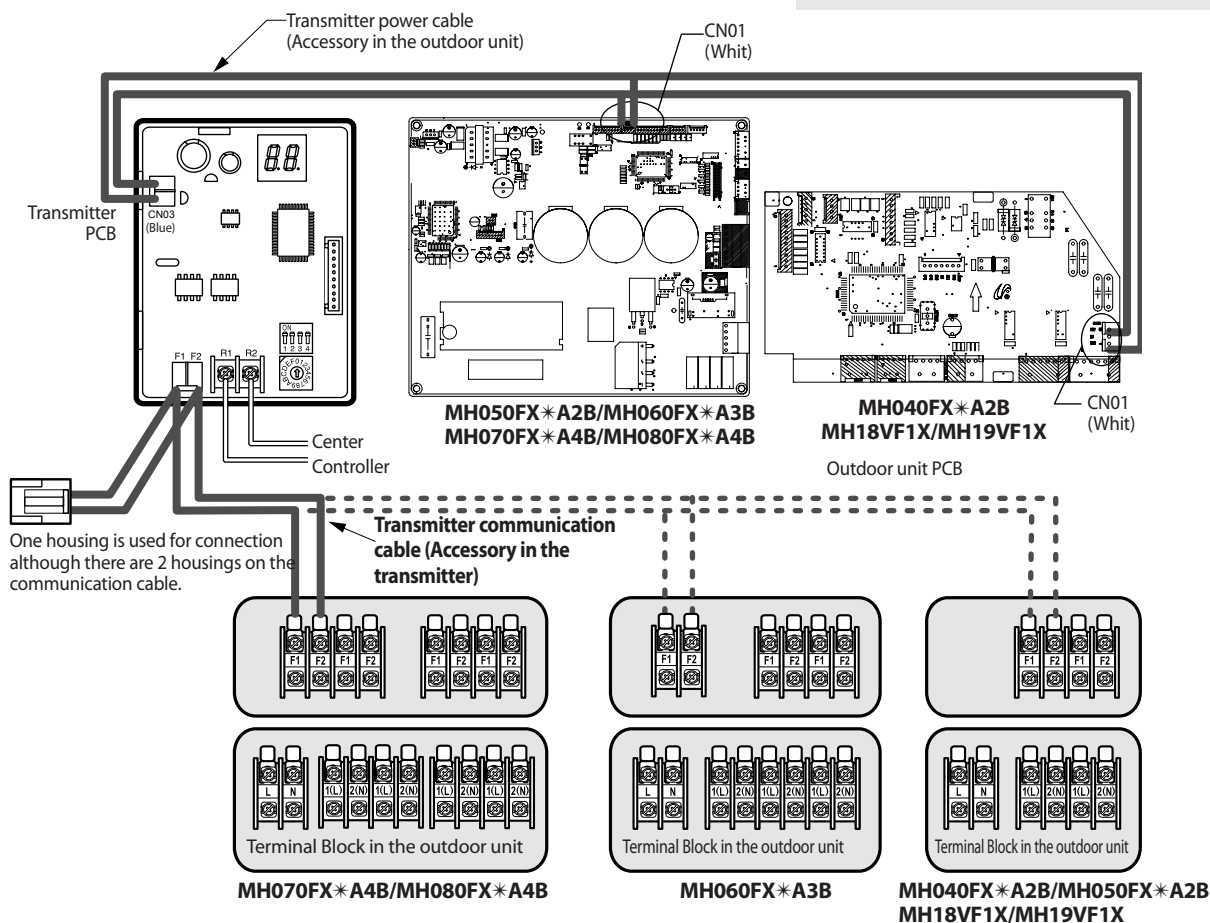
Fix the case with bolts
(Control Box in the outdoor unit)

MH060FX*A3B/MH070FX*A4B / MH080FX*A4B

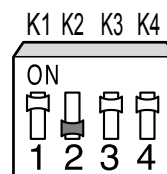


Fix the case with bolts
(Control Box in the outdoor unit)

- 1 Fix the case with bolts on the control box in the outdoor unit.
(See the picture)
- 2 Attach the transmitter PCB to the case in the control box in the outdoor unit, then connect the power and the communication cable between the transmitter and the outdoor unit; refer to the figure of page 19.
- 3 If you install a transmitter to an outdoor unit, every indoor unit which is connected to an outdoor unit can be controlled simultaneously.
- 4 Each outdoor unit connected to the same centralized controller has its own transmitter.

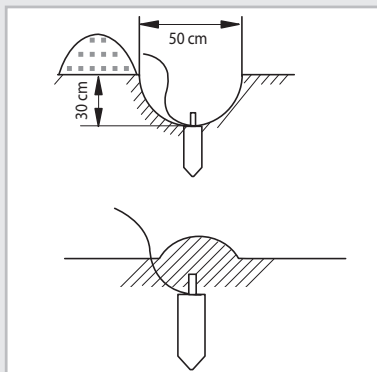
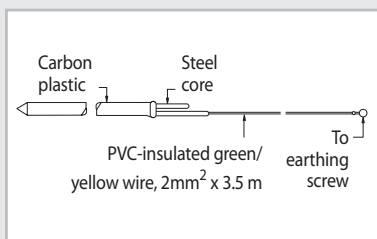


※ The designs and shape are subject to
change according to the model.



Change DIPswitch-K2 in all
indoor units PCB (K2 : ON → OFF)

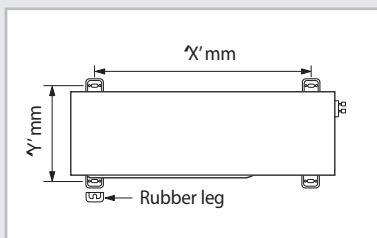
Checking Correct Earthing



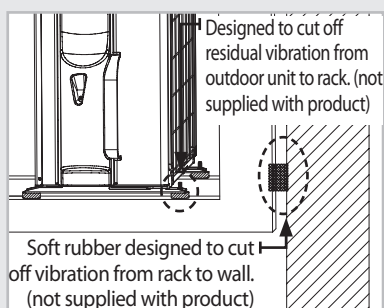
If the power distribution circuit does not have an earth or the earth does not comply with specifications, an earthing electrode must be installed. The corresponding accessories are not supplied with the air conditioner.

- 1 Select an earthing electrode that complies with the specifications given in the illustration opposite.
- 2 Determine a suitable location for the earthing electrode:
 - ◆ In damp hard soil rather than loose sandy or gravel soil that has a higher earthing resistance
 - ◆ Away from underground structures or facilities, such as gas pipes, water pipes, telephone lines and underground cables
 - ◆ At least two meters away from a lightning conductor earthing electrode and its cable.
 - The earthing wire for the telephone line cannot be used to earth the air conditioner.
- 3 Dig a hole of the size indicated in the illustration opposite, drive the earthing electrode into position and cover the top of the electrode with the excavated soil.
- 4 Install a green/yellow insulated earthing wire (Ø1.6 mm, section 2 mm² or greater):
 - ◆ If the earthing wire is too short, connect an extension lead, soldering the connection and wrapping it with insulating tape (do not bury the soldered connection)
 - ◆ Secure the earthing wire in position with staples
 - If the earthing electrode is installed in an area of heavy traffic, its wire must be connected securely.
- 5 Carefully check the installation, by measuring the earthing resistance with an earthing resistance tester. If the resistance is above the required level (Example: 100Ω), drive the earthing electrode deeper into the ground or increase the number of earthing electrodes.
- 6 Connect the earthing wire to the earthing screw on the air conditioner.

Fixing the Unit in Position



Model	X	Y
MH040FX*A2B MH18VF1X MH19VF1X	543	319
MH050FX*A2B MH060FX*A3B MH070FX*A4B MH080FX*A4B	660	350



The outdoor unit must be installed on a rigid and stable base to avoid any increase in the noise level and vibration, particularly if the outdoor unit is to be installed close to a neighbour.

If it is to be installed in a location exposed to strong winds or at a height, the unit must be fixed to an appropriate support (wall or ground).

- 1 Position the outdoor unit so that the air flow is directed towards the outside, as indicated by the arrows on the top of the unit.
- 2 Attach the outdoor unit to the appropriate support using anchor bolts.
- 3 If the outdoor unit is exposed to strong winds, install shield plates around the outdoor unit, so that the fan can operate correctly.

➢ **Certainly fix up its rubber leg in order to prevent its vibration and noise.**

OUTDOOR UNIT INSTALLED ON THE WALL BY RACK

- Ensure the wall will be able to suspend the weight of rack and outdoor unit;
- Install the rack close to the column as much as possible;
- Install proper grommet in order to reduce noise and residual vibration transferred by outdoor unit towards wall.

Connecting Up and Purging the Circuit

The outdoor unit is loaded with sufficient R410A refrigerant. Do not vent R-410A into atmosphere: it is a fluorinated greenhouse gas, covered by Kyoto Protocol, with a Global Warming Potential (GWP) = 1975.

You should purge the air in the indoor unit and in the pipe.

If air remains in the refrigerant pipes, it affects the compressor. It may cause reduction of cooling capacity and malfunction.

Refrigerant for air purging is not charged in the outdoor unit.

Use Vacuum Pump as seen in the picture.

◆ MH040FX*A2B / MH052FX*A2B / MH18VF1X/MH19VF1X

- 1 Check the piping connections.
- 2 Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port (MH040FX*A2B:3/8" service valve 2EA; MH052FX*A2B:3/8" service valve 1EA+1/2" service valve 1EA) as shown at the figure.

WARNING:

Make the electrical connection and leave the system into "stand by mode". Do not turn on the system!

This is necessary for better vacuum operation (full OPEN position of Electronic Expansion Valve - EEV -).

- 3 Open the valve of the low pressure side of manifold gauge counter-clockwise.

- 4 Purge the air from the system using vacuum pump for about 10 minutes.
 - Close the valve of the low pressure side of manifold gauge clockwise.
 - Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 10 minutes.

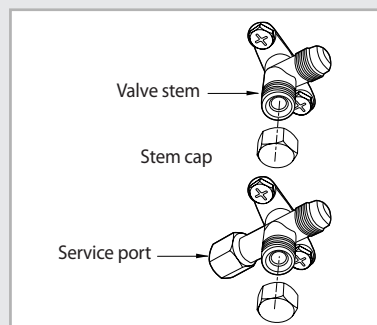
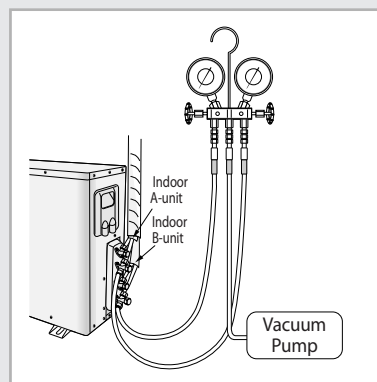
This procedure is very important in order to avoid gas leak.

 - Turn off the vacuum pump
 - Remove the hose of the low pressure side of manifold gauge.

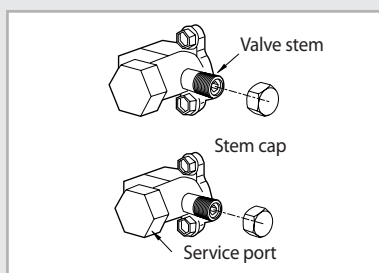
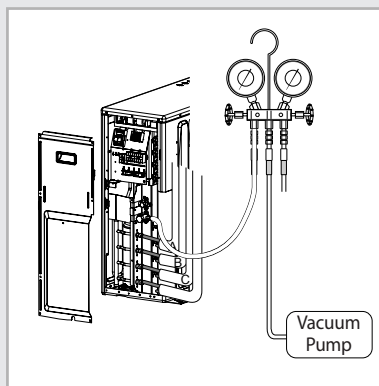
- 5 Set valve cork of both liquid side and gas side of packed valve to the open position.

- 6 Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 183kgf·cm with a torque wrench.

- 7 Check for gas leakage.
 - At this time, especially check for gas leakage from the 3-way valve's stem nuts, and from the service port cap..



Connecting Up and Purging the Circuit(Cont.)



◆ MH060FX*A3B/MH070FX*A4B / MH080FX*A4B

1 Check the piping connections.

2 Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port (5/8" Packed valve) as shown at the figure (Value stem: 1/2" - 20UNF).

WARNING:

Make the electrical connection and leave the system into "stand by mode". Do not turn on the system!

This is necessary for better vacuum operation (full OPEN position of Electronic Expansion Valve - EEV -).

3 Open the valve of the low pressure side of manifold gauge counter clockwise.

4 Purge the air from the system using vacuum pump for about 30 minutes.
- Close the valve of the low pressure side of manifold gauge clockwise.
- Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 30 minutes.

This procedure is very important in order to avoid gas leak.

- Turn off the vacuum pump.

- Remove the hose of the low pressure side of manifold gauge.

5 Set valve cork of both liquid side and gas side of packed valve to the open position.

6 Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 183kgf·cm with a torque wrench.

7 Check for gas leakage.

- At this time, especially check for gas leakage from the 3-way valve's stem nuts, and from the service port cap.

Adding Refrigerant

If you install the excessive length of pipe, add additional refrigerant as 10g per unit meter ; refer to the table below.

Refer to the Service Manual for more details on this operation.

Model	Total connecting pipe length (L)	Adding refrigerant
MH040FX*A2B	LT≤15m	Chargeless
	LT>15m	(LT- 15m)x10g
MH050FX*A2B	LT≤20m	Chargeless
	LT>20m	(LT- 20m)x10g
MH060FX*A3B	LT≤30m	Chargeless
	LT>30m	(LT- 30m)x10g
MH070FX*A4B	LT≤40m	Chargeless
	LT>40m	(LT- 40m)x10g

Important information regulation regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

CAUTION :

Inform user if system contains 3 kg or more of fluorinated greenhouse gases. In this case, it has to be checked for leakage at least once every 12 months, according to regulation n°X842/2006. This activity has to be covered by qualified personnel only.

In case situation above (3 kg or more of R-410A), installer (or recognised person which has responsibility for final check) has to provide a maintenance book, with all the information recorded according to REGULATION (EC) N°X 842/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on certain fluorinated greenhouse gases.

Please fill in with indelible ink,

- ① the factory refrigerant charge of the product,
 - ② the additional refrigerant amount charged in the field and
 - ①+② the total refrigerant charge.
- on the refrigerant charge label supplied with the product.

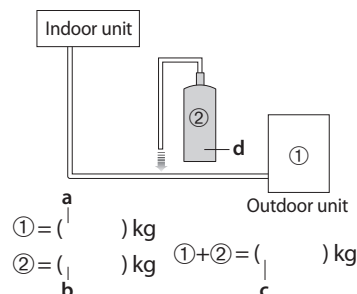
- Note**
- a. Factory refrigerant charge of the product: see unit name plate
 - b. Additional refrigerant amount charged in the field (Refer to the above information for the quantity of refrigerant replenishment.)
 - c. Total refrigerant charge
 - d. Refrigerant cylinder and manifold for charging

- **The filled-out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop valve cover).**

Refrigerant type	GWP value
R410A	1975

* GWP=Global Warming Potential

Contains fluorinated greenhouse gases covered by the Kyoto Protocol.



Performing Leak Tests

Before completing the installation (insulation of the cables, hose and piping and fixing of the indoor unit to the installation plate), you must check that there are no gas leaks.

To check for gas leaks on the...	Then, using a leak detector, check the ...
Indoor unit	Flare nuts at the end of sections C and D.
Outdoor unit	Valves on sections A and B.

LEAK TEST WITH NITROGEN (before opening valves)

In order to detect basic refrigerant leaks, before recreating the vacuum and recirculating the R-410A, it's responsible of installer to pressurize the whole system with nitrogen (using a cylinder with pressure reducer) at a pressure above 30 bar (gauge).

LEAK TEST WITH R-410A (after opening valves)

Before opening valves, discharge all the nitrogen into the system and create vacuum according to page 23 ~24.

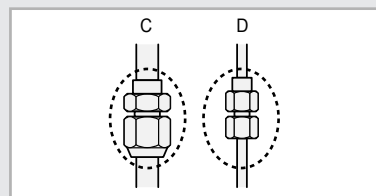
After opening valves, check leaks using a leak detector for refrigerant.

PUMP DOWN (before disconnecting the refrigerant connections for unit repair, removal or disposal)

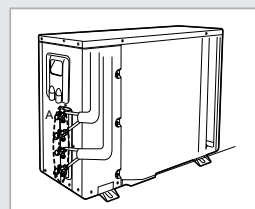
Pump-down is an operation intended to collect all the system refrigerant in the outdoor unit. This operation must be carried out before disconnecting the refrigerant pipe in order to avoid refrigerant loss to the atmosphere.

- Shut off all the liquid valve with the Allen wrench.
- Turn the system on in cooling with fan operating at high velocity. (Compressor will immediately start, provided 3 minutes have elapsed since the last stop).
- After 2 minutes of operation, shut down the suction valves with the same wrench.
- Turn the system off and switch mains supply off.
- Disconnect pipes. After disconnection, protect valves and tubing ends from dust.
- Compressor damage may occur if run at a negative suction pressure.

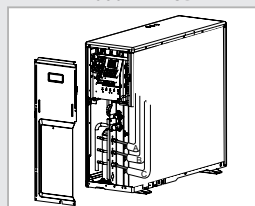
* The designs and shape are subject to change according to the model.



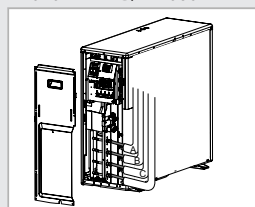
MH040FX*A2B/MH050FX*A2B
MH18VF1X/MH19VF1X



MH060FX*A3B

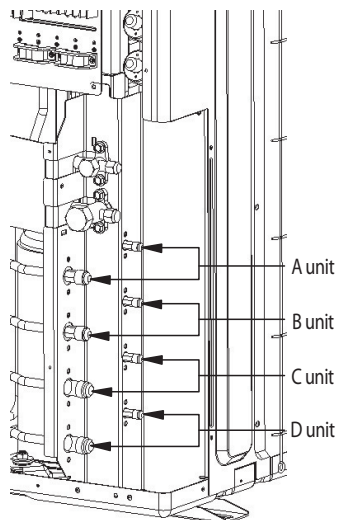


MH070FX*A4B/MH080FX*A4B



Pipe Installation with Indoor Units

OUTDOOR UNIT



◆ MH070FX*A4B / MH080FX*A4AB

Follow different orders depending on the capacity of indoor units.

MH020/023/026/030/035F*EA

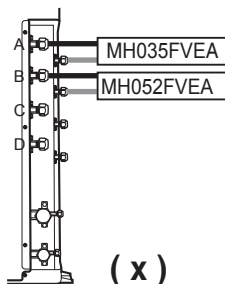
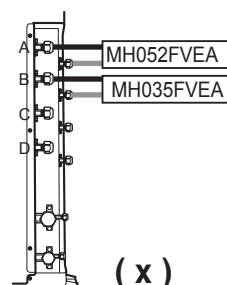
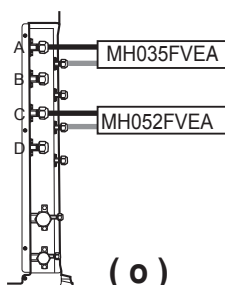
- ◆ Install pipes between indoor and outdoor units orderly as [A→B→C→D].

MH052F*EA*

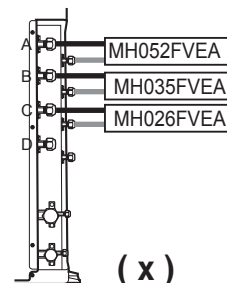
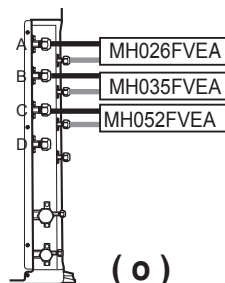
- ◆ Install pipes between indoor and outdoor units orderly as [C→D].

Examples

- ◆ 2Rooms: MH035FVEA+MH052FVEA



- ◆ 3Rooms: MH026FVEA+MH035FVEA+MH052FVEA

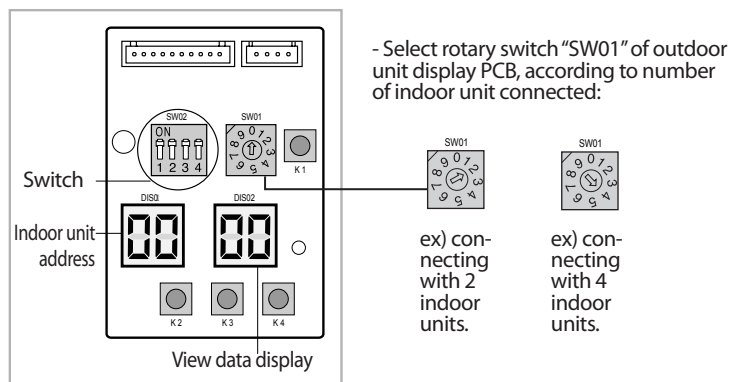


Switch Setting and Testing Operation

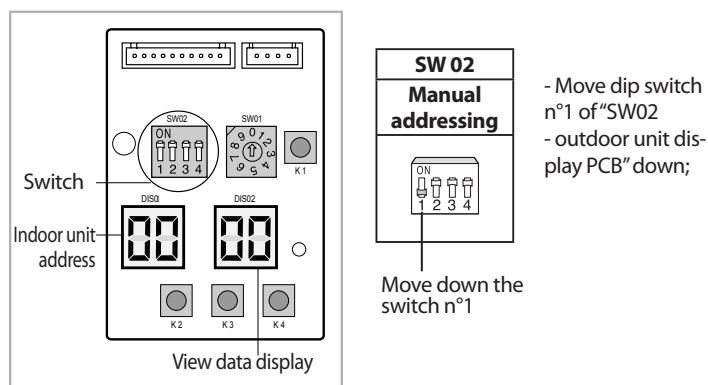
To complete the installation, perform the following checks and tests to ensure that the air conditioner is operating correctly.

- Step 1** Review all the following elements in the installation:
- ◆ Installation site strength
 - ◆ Piping connection tightness to detect any gas leakage
 - ◆ Connection wiring
 - ◆ Heat-resistant insulation of the piping
 - ◆ Drainage
 - ◆ Earthing wire connection

- Step 2** **IMPORTANT!**
Before selecting switch turn off the system power supply



Advise control we are going to proceed with manual addressing as follow:

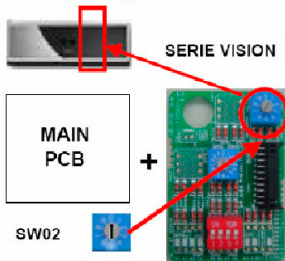
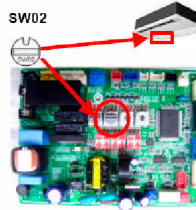
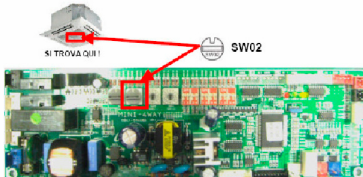
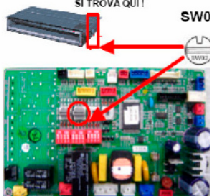
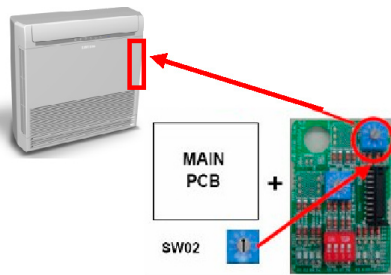


- Step 3** Follow of indication reported into table below for indoor unit addressing

- Step 4** Turn on the system power supply and waiting for 60 seconds after establishing communication between outdoor and indoor units.
During this phase, the left display of outdoor unit display PCB "DIS01" will count from 00–01–02 to 15.
Established communication the left display will count sequentially:
00–communication with indoor unit A;
01–communication with indoor unit B;
02–communication with indoor unit C;
03–communication with indoor unit D;

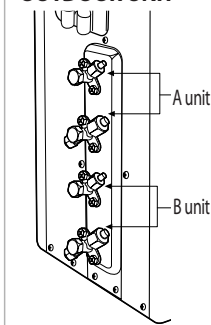
✱ In case of Manual address mode, you can do pipe check operation for check whether you connect the pipes correctly or not.
But you need set indoor address switch yourselves.

Switch Setting and Testing Operation(Cont.)

TYPE	PICTURE	MODEL	TO SET ADDRESSING MANUALLY BY ROTARY SWITCH "SW02"
RAC		MH020FV(N)EA MH023FBEA MH026FB(V/N)EA MH035FB(V/N)EA MH052FB(V/N)EA	IT'S HERE! Same for:  MAIN PCB + SW02
1 WAY CASSETTE		MH026FKEA MH035FKEA	CASSETTE ONE WAY  SW02 IT'S HERE!
MINI 4 WAY		MH030FMEA MH035FMEA MH052FMEA	CASSETTA (mini 4 WAY)  SI TROVA QUI! SW02
SLIM DUCT MSP-DUCT		MH026FEEA MH035FEEA MH052FUEA	CANALIZZATO (SLIM DUCT)  SI TROVA QUI! SW02
CONSOLE		MH026FJEA MH035FJEA	 MAIN PCB + SW02

**ROTARY SWITCH "SW02" POSITION ACCORDING TO REFRIGERANT CIRCUIT
CONNECTED (0=A; 1=B; 2=C; 3=D)**

OUTDOOR UNIT



Indoor Unit

SW02

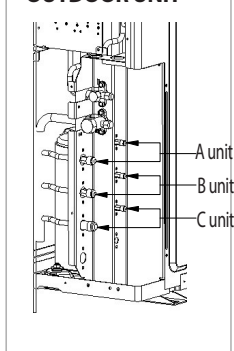
Att. "A"



Att. "B"



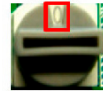
OUTDOOR UNIT



Indoor Unit

SW02

Att. "A"



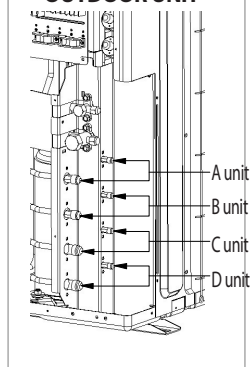
Att. "B"



Att. "C"



OUTDOOR UNIT



Indoor Unit

SW02

Att. "A"



Att. "B"



Att. "C"



Att. "D"



INSTALLATION TEST MODE (with all indoor units functioning)

Please do cool mode try-run or heat mode try run.

Cool mode try-run : Push the [K2] button three times.

Heat mode try-run : Push the [K2] button once.

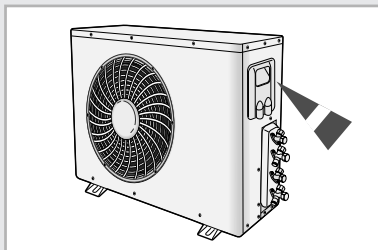
After 12 minutes of stationary condition check each indoor unit air treatment:

Cooling mode (indoor unit check) --> Inlet air temp. - Outlet air temp: From 10°K to 12°K (indicative delta T)

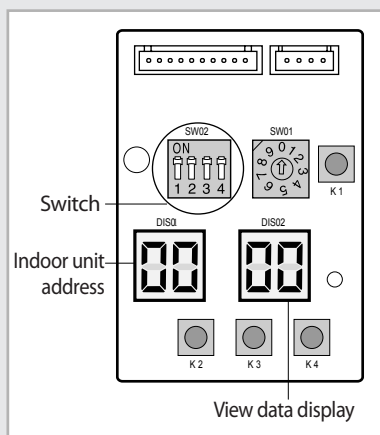
Heating mode (indoor unit check) --> Outlet air temp. - Inlet air temp: From 11°K to 14°K (indicative delta T)

In heating mode, the indoor fan motor can remain off to avoid cold air blown into conditioned space.

Switch Setting and Testing Operation (Cont.)



※ The designs and shape are subject to change according to the model.



Outdoor PCB Display

➤ It could take maximum 60 minutes to operate for the protection of the compressor if the outdoor temperature is below -5°C.

Ampere Limit Setting & Changing Procedure

⚠ WARNING

- ◆ Do not adjust the "Ampere Limit Switch", if it's not necessary: before modifying it, evaluate the total number of electric and electronics loads consumption and use "Ampere limits switch" just as emergency solution or in case the system is anyway oversized compared to real thermal load needed.
- ◆ "Ampere Limit Switch" is initially set to the default value (table below).
- ◆ "Ampere Limit Switch" is on the PCB of outdoor unit.
- ◆ Contact the authorized service technician or dealer for setting and changing the "Ampere Limit Switch".
- ◆ Before changing the "Ampere Limit Switch", turn off the main power of the system.

Ampere					Switch Selection	
MH040FX*A2B MH18VF1X MH19VF1X	MH050FX*A2B	MH060FX*A3B	MH070FX*A4B MH080FX*A4B	Switch	3	4
9.0A (Default)	13.5A (Default)	14.5A (Default)	16.6A (Default)		ON	ON
8.5A	11.0A	13.0A	14.0A		ON	OFF
8.0A	9.0A	10.0A	11.0A		OFF	ON
7.0A	8.0A	8.0A	10.0A		OFF	OFF

Pipe Checking Operation (Auto Addressing Mode)

- ◆ Switch the system on and wait for code "E 1 99" to appear on the display of the external unit (**this requires approximately 60 seconds ****).
- ◆ As soon as code "E 1 99" displays, press once the **red button** (K1) shown on the figure on the side of the page:

WARNING !!

If the quantity of indoor units connected is lower than maximum connectable to outdoor unit, the rotary switch SW01 has to be positioned, in order to select a number equal to indoor units' quantity you connected.

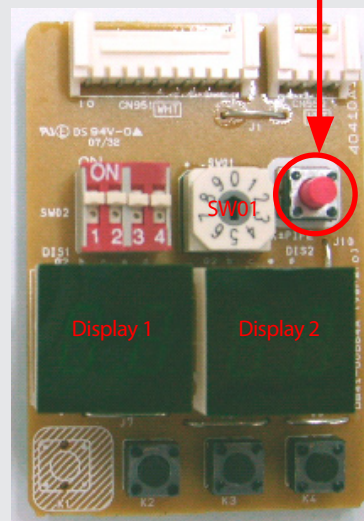
- ◆ After the operations described above have been performed, the system starts in Cooling or Heating mode, depending on the external ambient temperature. After a few minutes (**from a minimum of 3 to 5 minutes for the internal unit**), the system stops automatically, completing the self-test and addressing procedure.
"F5 0F" appears on the display of the external unit.
- ◆ 20 seconds after the display of "F5 0F" (**that confirms the correct execution of the procedure**), the following codes (if four internal units are connected) display in sequence on the display of the external unit:

Display 1	Display 2	Description
00	00	The outdoor unit is communication correctly together the indoor unit connected to refrigerant pipe A.
01	00	The outdoor unit is communication correctly together the indoor unit connected to refrigerant pipe B.
02	00	The outdoor unit is communication correctly together the indoor unit connected to refrigerant pipe C.
03	00	The outdoor unit is communication correctly together the indoor unit connected to refrigerant pipe D.

At this point it is possible to start the internal units in the desired mode

- ***If "F5 0F" doesn't display, the procedure has failed and it is therefore necessary to read ALL the operator's manual before repeating the operating described in steps 1-2-3-4.***

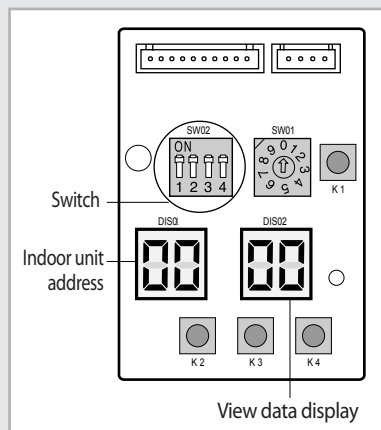
Red Button K1



Display of the external unit

* During the initial 60 seconds, display 1 shows in sequence: 00 → 01 → 02 → ...15 → 00...

Switch Setting and Testing Operation (Cont.)



Outdoor PCB Display

Settings of PCB Display of the Outdoor unit

◆ Key Options of PCB Display

- K1 : pipe checking operation button
- K2 : Function button
- K3 : Reset button
- K4 : View mode change button

Key Push	K1	K2	K3	K4
1	Pipe Checking Operation (Display: 15)	Heat Mode Try run (Display: 11)	Reset	View mode change
2	-	Refrigerant Charging (Display: 12)		
3	-	Cool Mode Try run (Display: 13)		
4	-	Pump down (Display: 14)		

※ Heat and Cool Mode Try run functions are just For Service Technician

◆ K4 View mode Display changes

Push	Display Explanation	Push	Display Explanation
0	Present Compressor Frequency	8	Discharge temperature
1	Target Compressor Frequency	9	OLP temperature
2	Order Compressor Frequency	10	Condenser temperature
3	EEV0 current step	11	Outdoor temperature
4	EEV1 current step	12	First current
5	EEV2 current step	13	Target Discharge temperature
6	EEV3 current step3	14	Total capacity of the indoor units
7	Fan RPM (H: high, L: low, Blank: off)	15	Safety Control (just For Service Technician)

※ The EEV 2 and EEV 3 of MH040FX*A2B/MH050FX*A2B/MH18VF1X/MH19VF1X models are always displayed as blank.

※ The EEV 3 of MH060FX*A3B model is always displayed as blank.

Troubleshooting

The table below give indication about self diagnostic routine. Some of error code requires activities exclusively for Authorise Service Center.

The error indicated on the PCB display of outdoor unit

DISPLAY	EXPLANATION (The error indicated on the PCB display of outdoor unit)	REMARK
E101	Communiaction error(indoor unable to receive data)	Check electrical connection and setting
E102	Outdoor unit communication error (Abnormal data from indoor unit over 60 packet)	Check electrical connection and setting
E121	Indoor unit room temperature sensor error (Open/Short)	
E122	Indoor unit heat exchanger in temperature sensor error (Open/Short)	
E123	Indoor unit heat exchanger out temperature sensor error (Open/Short)	
E128	Indoor unit sensor error-Evaporator pipe in sensor - Self diagnosis	
E129	Indoor unit sensor error-Evaporator pipe out sensor - Self diagnosis	
E154	Indoor Unit FAN Error	
E161	More than two indoor units cool and heat simultaneously	
E162	Indoor Unit EEPROM Error	
E163	Indoor Unit EEPROM Option Error	
E190	Failure of pipe check operation	Check piping connection and setting
E199	No pipe check operation check - occasion : try to operation after the installation through auto addressing mode without pipe check operation.	Check setting
E201	The number of Indoor unit mismatched	Check electrical connection and setting
E202	Communication error between the outdoor and indoor unit	Check electrical connection and setting
E203	Outdoor communication error between main PCB and sub PCB	
E221	Outside temperature sensor error(Short/Open) - Error level: over 4.9V(-50°C) under 0.4V(93°C)	
E237	Condenser temperature sensor error(Short/Open) - Error level: over 4.9V(-50°C) under 0.4V(93°C)	
E246	Outdoor unit sensor error - Condenser out sensor(Short/Open) - Self diagnosis	
E251	Compressor Discharge temperature sensor error	
E261	Compressor discharge sensor detached - Self diagnosis	
E320	Compressor OLP sensor error (Short/Open) - Error condition : outdoor temperature under -20°C - Error level : over 4.95V(-30°C) under 0.5V(151°C)	

Troubleshooting (Cont.)

The table below give indication about self diagnostic routine. Some of error code requires activities exclusively for Authorise Service Center.

The error indicated on the PCB display of outdoor unit

DISPLAY	EXPLANATION (The error indicated on the PCB display of outdoor unit)	REMARK
E4 01	Outdoor unit freezing(Compressor stop)	check pipe lenght, indoor unit filter, refrigerant leakage/charge and service port
E4 04	Outdoor unit overload - Safety control(Compressor stop)	check pipe lenght, refrigerant leakage/charge
E4 16	Outdoor unit high discharge temperature - Safety control (Compressor stop)	check pipe lenght, refrigerant leakage/charge
E4 19	Outdoor unit EEV open (Stopped indoor unit's) -Self diagnosis	
E4 22	Outdoor unit EEV open (operating indoor unit's) -Self diagnosis	
E4 40	High temperature(over 30°C) of outdoor as heating mode	
E4 41	Low temperature(under -10°C) of outdoor as cooling mode	
E4 58	Outdoor Fan Error	
E4 60	Communication cable mismatched between indoor and outdoor unit	Check electrical connection
E4 61	Inverter compressor starting failure (5 times)	
E4 62	Compressor trip by input current control mode (PFC over current)	
E4 63	Compressor trip by OLP temperature control mode	
E4 64	DC peak error (IPM Over Current)	
E4 65	Compressor Vlimit Error	
E4 66	DC link Voltage error (under 150V, over 410V)	
E4 67	Abnormal compressor running (Compressor Rotation Error)	
E4 68	Current sensor error	
E4 69	DC link Voltage sensor error	
E4 71	OTP Error	
E4 72	Inverter micom zero-crossing error	

Explaining Operations to the Owner

Before leaving the premises on which you have installed the air conditioner, you should explain the following operations to the owner, making reference to the appropriate pages in the owner's instruction booklet.

- 1 How to start and stop the air conditioner.
- 2 How to select the operating mode and adjust the temperature and fan settings.
- 3 How to adjust the air flow direction.
- 4 How to set the timers.
- 5 How to remove and clean the filters.

➤ ***Once the owner is happy with the basic operations, hand over the owner's instruction booklet and this installation manual for storage in a handy and safe place.***



SAMSUNG

INSTALLATION MANUAL

Free Joint

MH040FX*A2B
MH050FX*A2B
MH060FX*A3B
MH070FX*A4B
MH080FX*A4B

Fixed

MH18VF1X
MH19VF1X

Free Joint Multi & Multi-Split Type Room Air Conditioner (Cooling and Heating)

INVERTER

